



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,549	01/09/2002	Christopher A. Michaluk	00029CIP	5470

7590

11/17/2003

Martha Ann Finnegan, Esq.  
Cabot Corporation  
157 Concord Road  
Billerica, MA 01821

EXAMINER
----------

OLTMANS, ANDREW L

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/042,549

Applicant(s)

MICHALUK, CHRISTOPHER A.

Examiner

Andrew L Oltmans

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-94 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-94 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Claim Status***

1. Claims 1-94 remain pending in the application. In view of applicant's amendments the objection to the claims and the rejections under 35 USC 102 have been withdrawn. However, also in view of applicant's amendments, the claims have been rejected under 35 USC 103, as appropriate. Further, in view of the amendment to the specification, the application has been objected to for containing new matter. In view of the fact that the new grounds for rejection are in response to applicant's amendments, this Office Action is FINAL.

### ***Specification***

2. The amendment filed August 28, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

The amendment on the last line of the paragraph replace on page 16, ending on line 18, wherein the "°F" where replace with "°C" is new matter. The specification as originally filed does not provide support for this amendment. Although applicant claims that all of the amendments are merely to fix typographical errors, the fact that it is not clear that there is an error, and the correction for the error are not apparent makes the amendment new matter, see MPEP 2163.07. The original disclosure further supports the grounds for objection in that the original claims pertaining to the relevant process

Art Unit: 1742

conditions contain °C as the temperature system (see e.g. original claims 64, 73, and 76), indicating to one of ordinary skill in the art that the temperature ranges prior to applicant's amendment would be correct. Therefore, the amendment constitutes new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

NOTE: The changes in the drawings have support in the original disclosure because the amendments involve either simple temperature conversions or find support in the specification (e.g. at page 9, line 20 and page 17, lines 17-24).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Clark et al. "Influence of Transverse Rolling on the Microstructural and Textural Development of Pure Tantalum", Metallurgical Transactions A, Volume 23A, August 1992, pages 2183-2191 in view of International Application Publication WO 87/07650 (WO '650)***

4. Claims 1-14, 16-17, 71-73 and 89-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. "Influence of Transverse Rolling on the Microstructural and Textural Development of Pure Tantalum", Metallurgical Transactions A, Volume 23A, August 1992, pages 2183-2191 (Clark) in view of International Application Publication WO 87/07650 (WO '650).

Art Unit: 1742

Clark teaches an extruded tantalum billet having a substantially uniform grain size (note definition of substantially uniform grain size in the specification paragraph bridging pages 5-6) which is fully recrystallized via annealing, as recited in claims 1-2, 8-11, 13, 71-73 and 89-90 (page 2184, Figure 2; page 2186, Table I; page 2190, Section C and Conclusions paragraph 1). Clark et al. teaches extruded articles having the grain size instantly claimed in instant claims 3-6. (page 2186, Table I).

Clark fails to meet all the limitations of the instant claims in that Clark does not explicitly teach the purity claimed, the metal in the article, the sputtering target, or resistive film layer.

WO '650 teaches the purity claimed in instant claims 1-2, 7 and 12 and the metal in a sputtering target (i.e. an article), and a resistive film layer (abstract), as recited in claims 14 and 16-17. WO '650 teaches that the use of highly pure tantalum in the formation of the target results in a high-quality oxide insulating film and metallic Ta electrode film (abstract).

One of ordinary skill in the art at the time that the invention was made would have been motivated to use the high purity tantalum material of WO '650 in the process of Clark in order to provide Clark with the desirable result of providing a material when formed into a tantalum sputtering target, as taught in WO '650, the material yields a high quality oxide insulating film and metallic Ta electrode film (WO '650: abstract).

*Clark et al. "Influence of Transverse Rolling on the Microstructural and Textural Development of Pure Tantalum", Metallurgical Transactions A, Volume 23A, August 1992, pages 2183-2191 in view of International Application Publication WO 87/07650 (WO '650) in further view of Friedman et al. 5,482,672*

5. Claims 18-35, 74-79 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al. "Influence of Transverse Rolling on the Microstructural and Textural Development of Pure Tantalum", Metallurgical Transactions A, Volume 23A, August 1992, pages 2183-2191 (Clark) in view of International Application Publication WO 87/07650 (WO '650) in further view of Friedman et al. 5,482,672 (Friedman).

Clark and WO '650 teach and are applied as set forth above in paragraph 4.

Clark in view of WO'650 fails to meet all the limitations of the instant claims in that Clark in view of WO'650 does not explicitly teach the particular extrusion conditions.

Friedman teaches the extrusion of tantalum and niobium ingots (col 1, lines 19-20 and 41-44), including the temperature of extrusion (col 4, lines 58-60), the coating of the material (col 5, lines 13-16), the removal of the coating (col 5, lines 17-21), as recited in instant claims 18-35, 74-79 and 91. Friedman teaches that the extrusion process is advantageous because it provides a way to make bars, rods and tubes out of "difficult to make" metals (i.e. tantalum and niobium) (col 1, lines 10-14).

One of ordinary skill in the art would have found the invention to be obvious because one of ordinary skill in the art would have been motivated to use the particular processing conditions of Friedman because extrusion of tantalum and niobium is known in the art, as shown in Friedman; therefore, the particular processing conditions taught therein would be obvious as the

Art Unit: 1742

particular conditions used in Clark, wherein one of ordinary skill in the art would find it desirable to provide an extrusion process that allows for the formation of bars, rods and tubes of tantalum or niobium, as taught in Friedman.

With respect to the limitation of recrystallization during extrusion (claims 18 and 23), one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the process steps taught by the reference are the same as the process steps recited in the claims (i.e. extrusion at the same processing temperature (Friedman: col 4, lines 58-60)) and therefore one of ordinary skill in the art would expect that the products resulting from the process taught by the reference would be the same as the product resulting from applicant's claimed process, including the product's degree of recrystallization.

**"Where the claimed and prior art products are identical or substantially identical in structure or composition or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best 195 USPQ 430, 433 (CCPA 1977)." see MPEP 2112.01. [emphasis added by examiner]**

***Clark et al. "Influence of Transverse Rolling on the Microstructural and Textural Development of Pure Tantalum", Metallurgical Transactions A, Volume 23A, August 1992, pages 2183-2191 in view of International Application Publication WO 87/07650 (WO '650) in further view of Rerat 4,149,876***

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Clark et al.

"Influence of Transverse Rolling on the Microstructural and Textural Development of Pure

Tantalum", Metallurgical Transactions A, Volume 23A, August 1992, pages 2183-2191 (Clark)

Art Unit: 1742

in view of International Application Publication WO 87/07650 (WO '650) in further view of Rerat 4,149,876 (Rerat).

Clark and WO '650 teach and are applied as set forth above in paragraph 4.

Clark in view of WO'650 fails to meet all the limitations of the instant claims in that Clark in view of WO'650 does not explicitly teach the capacitor can.

Rerat teaches that tantalum and niobium are desirable materials for forming capacitor components, including the capacitor can (col 1, lines 6-7; col 2, line 48 to col 3, line 35; col 16, claim 1).

One of ordinary skill in the art at the time that the invention was made would have been motivated to use the material of Clark to form capacitor parts because the formation of capacitor parts from tantalum and niobium is well-known, as shown in Rerat, wherein tantalum and niobium provide desirable electrical properties to the capacitors (col 2, line 48 to col 3, line 35).

***Japanese Patent Document JP 2000104164 A in view of Friedman 5,482,672 in further view of Japanese Patent JP 362104180A***

7. Claims 36-49, 51-70, 80-88 and 92-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Document JP 2000104164 A (JP '164) in view of Friedman 5,482,672 (Friedman) in further view of Japanese Patent JP 362104180A (JP '180).

NOTE: References to JP '164, below, are either to the English language abstract, or to the full English language translation provided.

JP '164 teaches that the niobium sputtering target is preferably made of a high grade (i.e. high purity) Nb having a substantially uniform grain size (note definition of substantially uniform grain size in the specification paragraph bridging pages 5-6) of less than 100  $\mu\text{m}$  and



Art Unit: 1742

preferably 50  $\mu\text{m}$  (paragraphs [0034] and [0045]). JP '164 further teaches a niobium sputtering target and a niobium resistive film resulting from the use of the sputtering target used in connection with a semiconductor device (i.e. an article comprising niobium) (abstract, paragraph [0007] and [0008]), as recited in instant claims 36-37, 48-49, and 51-52. JP '164 teaches that the niobium sputtering target is preferably made of a high grade (i.e. high purity) Nb having a substantially uniform grain size (note definition of substantially uniform grain size in the specification paragraph bridging pages 5-6) of less than 100  $\mu\text{m}$  and preferably 50  $\mu\text{m}$  (paragraphs [0034] and [0045]), as recited in instant claims 36-41. JP '164 further teaches the method of making the niobium sputtering target as including the steps of providing an purified niobium material (paragraph [0049]), forging (i.e. flat forging) (paragraph [0050]), plastic working the material 50-93% (paragraph [0050]), and recrystallization annealing at temperature of 800-1300°C for at least 1 hour to produce the recrystallized niobium have the fine crystal size (paragraph [0051]), as recited in instant claims 43-46, 80-88 and 92-94. JP '164 teaches that the niobium sputtering target is fully recrystallized (paragraphs [0051] and [0062]), as recited in instant claims 43-46.

JP '164 fails to meet all the limitations of the instant claims in that JP '164 does not explicitly teach extrusion.

Friedman teaches the extrusion of tantalum and niobium ingots (col 1, lines 19-20 and 41-44), including the temperature of extrusion (col 4, lines 58-60), the coating of the material (col 5, lines 13-16), the removal of the coating (col 5, lines 17-21), as recited in instant claims 37 and 53-70. Friedman teaches that the extrusion process is advantageous because it provides a

Art Unit: 1742

way to make bars, rods and tubes out of "difficult to make" metals (i.e. tantalum and niobium) (col 1, lines 10-14).

JP '180 teaches a super high-purity niobium sputtering target, which has a purity of greater than 99.99% wherein the level of purity provided results in the desirable effect of reducing non-uniformity of the film resulting from the target's use in a sputtering process (abstract, Japanese Document, page 410, column 1, table 1 and preceding paragraph), as recited in instant claims 36-37, 42 and 47.

One of ordinary skill in the art would have found the invention to be obvious because one of ordinary skill in the art would have been motivated to use the process of Friedman because extrusion of tantalum and niobium is known in the art, as shown in Friedman; therefore, the particular processing conditions taught therein would be obvious as the particular conditions used in JP '164, wherein one of ordinary skill in the art would find it desirable to provide an extrusion process that allows for the formation of bars, rods and tubes of tantalum or niobium, as taught in Friedman.

With respect to the purity claimed in instant claims 36-37, 42 and 47, one of ordinary skill in the art at the time that the invention was made would have found the invention to be obvious because one of ordinary skill in the art would have been motivated to use the high purity niobium of JP '180 in the method and composition of JP '164 in order to provide JP '164 with the desirable properties taught in JP '180, including the reduction in non-uniformity of the sputtered film (JP '180: abstract).

One of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the niobium material taught by the reference has a

Art Unit: 1742

composition which overlaps that of the instant claims, In re Peterson, 65 USPQ2d 1379, In re Malagari, 182 USPQ 549, and MPEP 2144.05.

With respect to the limitation of recrystallization during extrusion (claims 53 and 58), one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the process steps taught by the reference are the same as the process steps recited in the claims (i.e. extrusion at the same processing temperature (Friedman: col 4, lines 58-60)) and therefore one of ordinary skill in the art would expect that the products resulting from the process taught by the reference would be the same as the product resulting from applicant's claimed process, including the product's degree of recrystallization.

**"Where the claimed and prior art products are identical or substantially identical in structure or composition or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best 195 USPQ 430, 433 (CCPA 1977)." see MPEP 2112.01. [emphasis added by examiner]**

***Japanese Patent Document JP 2000104164 A in view of Friedman 5,482,672 in further view of Rerat 4,149,876 in further view of Japanese Patent JP 362104180A***

8. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent Document JP 2000104164 A (JP '164) in view of Friedman 5,482,672 (Friedman) in further view of Rerat 4,149,876 (Rerat) in further view of Japanese Patent JP 362104180A (JP '180).

9. NOTE: References to JP '164 and JP '180, below, are either to the English language abstract, or to the full English language translations provided.

JP '164, Friedman and JP '180 are taught as are applied as set forth in paragraph 7, above.

Art Unit: 1742

JP '164 and Friedman fail to meet all the limitations of the instant claims in that JP '164 and Friedman do not explicitly teach the capacitor can.

Rerat teaches that tantalum and niobium are desirable materials for forming capacitor components, including the capacitor can (col 1, lines 6-7; col 2, line 48 to col 3, line 35; col 16, claim 1).

One of ordinary skill in the art at the time that the invention was made would have been motivated to use the material of JP '164 to form capacitor parts because the formation of capacitor parts from tantalum and niobium is well-known, as shown in Rerat, wherein tantalum and niobium provide desirable electrical properties to the capacitors (col 2, line 48 to col 3, line 35).

#### *Response to Arguments*

10. Applicant's arguments filed August 28, 2003 have been fully considered but they are not persuasive. Claims 1-94 remain pending in the application. In view of applicant's amendments the objection to the claims and the rejections under 35 USC 102 have been withdrawn.

However, also in view of applicant's amendments, the claims have been rejected under 35 USC 103, as appropriate. Further, in view of the amendment to the specification, the application has been objected to for containing new matter. In view of the fact that the new grounds for rejection are in response to applicant's amendments, this Office Action is FINAL.

11. With respect to applicant's argument that there is no information for the properties of Clark's material right after it has been extruded (page 16 and 18 of applicant's response), the argument is not found persuasive because the claim language does not preclude any process steps

Art Unit: 1742

that happen subsequent to the extrusion. It is further noted that the article is claimed as “an extruded tantalum billet” wherein the only recitation of “extruded” in the product claims occurs in the preamble of the claim. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In this case the claim limitations (i.e. structural limitation) in the body of the claim can stand alone, wherein the body does not depend on the recitation “extruded” for completeness. However, even if the “extruded” is given patentable weight, the taught article of Clark is extruded and meets the recitation “extruded article” whether or not the material is subsequently treated. There is no recitation in the claim limiting the properties contained therein to “right after extrusion”, as argued by applicant. It is noted that all the comments above relating the preamble of the claim containing the recitation “extruded” are equally applicable to niobium. In view of all of the above, the arguments are not found persuasive.

12. With respect to applicant’s argument that the Figures of Friedman do not show grain uniformity along the axis of the billet or the purity (pages 16-17 of applicant’s response), the argument is not found persuasive. The argument is partially moot because the reference is no longer used as a primary reference. The reference is now only used to show how one of ordinary skill in the art would appreciate the advantages of extruding tantalum and niobium. The limitations referred to are taught or suggested by the other prior art references for the reasons set

Art Unit: 1742

forth in the rejection (see paragraphs 5, 7 and 8, above). Therefore, the argument is not persuasive.

13. Applicant's argument that JP '164 fails to teach the claimed purity and the presence of a billet (page 17-18 of applicant's response) are not persuasive. The examiner maintains that the purity is taught and suggested by the combination of JP '164, Friedman and JP '180, as set forth in the rejection above in paragraph 7 (see also paragraph 10 of the Office Action mailed April 28, 2003). Further, the examiner maintains that the process steps taught in JP '164 necessarily suggest a billet (i.e. an ingot that is subject to a thermo-mechanical process). See, for example, JP '164 paragraph [0050], "plastic working by forging and rolling is performed to the ingot of obtained Nb".

14. With respect to applicant's argument that Friedman fails to teach the claimed billet and would not be combinable to Clark (page 18-19 and 21 of applicant's response), the argument is not found persuasive. The typographical error pointed out by applicant was meant to read (col 1, lines 19-20 and 41-44), wherein Friedman teaches as follows (col 1):

**Refractory metals, such as tantalum and niobium and their  
alloys can be extruded. However, one of the characteristics 20**

and

**rolling. Alternatively, tantalum is electron beam melted or  
arc cast melted to produce ingots which are processed into  
rod, sheet or tubing, for example, by forging, swaging,  
rolling, etc.**

This teaching refers to the formation of a billet of the metals disclosed include melting and casting. Although applicant points to the preferred embodiments as being compacted powder

Art Unit: 1742

billets, the reference is not limited to the preferred embodiments, but rather is read as a whole,

MPEP 2123:

"The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." In re Heck, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968)).

A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989).

If the reference is read as a whole, the ingot-derived billet is taught, therefore making the instant invention obvious.

15. With respect to applicant's argument that the Clark and WO '650 reference are not easily combinable because the purities are different (page 19-20 of applicant's response), the argument is not persuasive. The examiner maintains that it would have been obvious to use the material of WO '650 as the material of Clark for the reasons set forth in the previous rejection (see also paragraph 3, above):

One of ordinary skill in the art at the time that the invention was made would have been **motivated to use the high purity tantalum material of WO '650 in the process of Clark in order to provide Clark with the desirable result of providing a material when formed into a tantalum sputtering target, as taught in WO '650, the material yields a high quality oxide insulating film and metallic Ta electrode film (WO '650: abstract).**

[emphasis added]

In addition to the benefits of high purity suggested by WO '650, Clark teaches that the tantalum is "high-purity tantalum" page 2183, column 1, paragraph 2. In view of the explicit teachings of WO '650 and Clark in addition to the motivation set forth in WO '650, one of ordinary skill in the art would have found the combination of Clark and WO '650 obvious. Therefore, the argument is not found persuasive.

Art Unit: 1742

16. With respect to applicant's argument that Rerat is not combinable to Clark (page 20-21 and 22 of applicant's response), the argument is not persuasive. The examiner maintains that the rejection is proper and that the teachings of Rerat include that tantalum and niobium are desirable materials for forming capacitor components, including the capacitor can (col 1, lines 6-7; col 2, line 48 to col 3, line 35; col 16, claim 1). The examiner is not relying on Rerat as a billet, but merely as a teaching that tantalum and niobium are preferable materials for capacitor fabrication. The mere fact that the powder is not melted is not sufficient to teach one of ordinary skill in the art away from using Ta or Nb in capacitor cans. Therefore, the argument is not found persuasive.

17. With respect to the argument that JP '180 and JP 164 are not combinable (page 22 of applicant's response), the argument is not found persuasive. JP '180 teaches that high purity is desirable in niobium sputtering targets (see previous rejection):

JP '180 teaches a super high-purity niobium sputtering target, which has a purity of greater than 99.99% wherein **the level of purity provided results in the desirable effect of reducing non-uniformity of the film resulting from the target's use in a sputtering process** (abstract, Japanese Document, page 410, column 1, table 1 and preceding paragraph), as recited in instant claims 36-37, 42 and 47.  
[emphasis added]

With respect to the purity claimed in instant claims 36-37, 42 and 47, one of ordinary skill in the art at the time that the invention was made would have found the invention to be obvious because one of ordinary skill in the art **would have been motivated to use the high purity niobium of JP '180 in the method and composition of JP '164 in order to provide JP '164 with the desirable properties taught in JP '180, including the reduction in non-uniformity of the sputtered film** (JP '180: abstract).  
[emphasis added]



Art Unit: 1742

Because JP '180 teaches that high purity is desirable for niobium sputtering targets, such as the niobium sputtering targets taught in JP '164, one of ordinary skill in the art would have found the claimed high purity niobium obvious. Therefore, the argument is not found persuasive.

18. In view of all of the above, the arguments are not found persuasive.

### *Conclusion*

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L Oltmans whose telephone number is 703-308-2594. The examiner can normally be reached 7:00-3:30 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone numbers for the

Art Unit: 1742

organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in black ink, appearing to read 'Andrew L. Oltmans', written in a cursive style.

Andrew L. Oltmans  
Examiner  
Art Unit 1742

November 14, 2003